AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) A cooling element for use in walls of furnaces that are subjected to high levels of thermal stress, with cast copper or a low-alloyed copper alloy, with coolant channels which comprise tubes cast in the copper or the copper alloy and are arranged inside the cooling element, wherein the tubes of the coolant channels are copper tubes ~~provided~~ with an electrodeposited nickel coating on their outer side.

2. (Canceled)

3. (Previously Presented) The cooling element as claimed in claim 1, wherein the thickness of the coating is between 3 and 12 μm.

4. (Canceled)

5. (Currently amended) A method for producing a cooling element provided inside with coolant channels formed from tubes, for use in walls of furnaces that are subjected to high levels of thermal stress, with the steps of

a) fabricating the tubes as copper tubes, including all desired curves, branches and similar flow structures,

b) casting molten copper or copper alloy around the tubes within a casting mold,

c) cooling the copper melt,

wherein during the fabrication of the tubes at least those regions of the outer sides of the tubes around which the copper or the copper alloy is later cast are electrolytically coated with nickel.

6. (Previously Presented) The method as claimed in claim 5, wherein the tubes are coated only after the desired form of tube has been fabricated.

7. (Previously Presented) The method as claimed in claim 5, wherein the outer sides of the tubes are mechanically blasted

before the coating.

8. (Previously Presented) The method as claimed in claim 5, wherein the coated outer sides of the tubes are degreased before the tubes are surrounded by casting.

9. (Canceled)

10. (Previously Presented) The method as claimed in claim 5, wherein the thickness of the electrodeposited layer is between 3 and 12 μm.

11. (Currently amended) The method as claimed in claim 5, wherein the tubes used are copper-nickel tubes with a copper content of 30 to 70wt.% and a nickel content of 20 to 65wt.%~~, and the coating of the outer sides of the tubes takes place in an electrolytic copper bath~~.

12. (Currently amended) The method as claimed in claim 11, wherein the copper-nickel tubes have a copper content of 31wt.% and a nickel content of 63wt.% ~~(Monel tubes)~~.

13. (Previously Presented) The cooling element as claimed in claim 3, wherein the thickness of the coating is between 6 and 10 μm.

14. (Previously Presented) The method as claimed in claim 7, wherein the outer sides of the tubes are mechanically blasted with coarse glass granules before the coating.

15. (Previously Presented) The method as claimed in claim 8, wherein the coated outer sides of the tubes are degreased by cleaning with acetone before the tubes are surrounded by casting.

16. (Previously Presented) The method as claimed in claim 10, wherein the thickness of the electrodeposited layer is between 6 and 10 μm.